

the terminal nebulosity not attracting attention. This probably is the explanation of the comparatively small diameters given by power 400.

On tabulating the observations of the white spot made by Dr. Huggins, Professor Tacchini, Mr. Erck, and myself, we have :

Date.	Diameter.	Observer.	
1867, July 9	7".85	Dr. Huggins.	Moon 8 days old.
1867,	7.94	Prof. Tacchini	
1873, June 4	4.0	Mr. Erck.	
1873, Dec. & Jan.	5.4	B.	Mean of the three best results with the 12-in. reflector.

Is not the white spot in a state of change ?

Loughlinstown, Co. Dublin,
1874, January 7.

Note on the Lunar Crater Linné. By William Huggins, Esq.,
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The different aspects which this crater assumes under different conditions of illumination have raised the question whether any permanent change can be ascertained to have taken place in it.

In 1867, I presented to the Society a Note on the appearance of this object, and some micrometrical measures of the Bright Spot and of the small Crater. (*Monthly Notices*, vol. xxvii. p. 296.) In that Note I referred to some early observations of the object which appeared to me to be in favour of the unaltered state of the crater from the time of Schroter (1788) to that of the observations of 1867.

I venture now to present some recent observations and measures of *Linné*, as possibly of some value in reference to the question, whether during the last eight years we have any indication of permanent change.

The White Spot.—Under some conditions of illumination, the shallow saucer-like form of the large crater is seen distinctly ; at other times the surface of the White Spot is similar in appearance to a cloud, presenting no distinct details and remaining undefined when the small neighbouring craters are seen with distinctness.

This cloud-like appearance is strong on the south-east and north-west sides of the shallow crater ; and when the form of this

crater is not seen, this cloud-like appearance is so marked on these sides as to change the apparent direction of the oval form of the spot. At these times, the long axis of the oval appears to be in the direction from E.S.E. to W.N.W., but the true direction of the longer axis of the shallow crater is from S.E. to N.W.

November 5, 1867, I found this long axis to be inclined to a parallel of declination at an angle of 55° .

Two measures, on December 27, 1873, gave an angle of 48° . This difference is not greater than may be due to the circumstance that, in trying to place the wire of the micrometer in the direction of the longer axis, the judgment is probably influenced by the side of the crater which is seen with greater distinctness, and as the object is not a regularly formed oval, it seems not improbable that some discrepancy may present itself from this cause between measures taken at different times.

In my former Note on *Linné* I gave the following measures of the Bright Spot:—

July 9, 1867	Length of Spot	7".85
	Breadth „	6.14

The crater was measured again on

November 5, 1867	Length	7".58
	Breadth	5.95
December 27, 1873	Length	7.16
	Breadth	4.3

I would remark, that in the breadth of crater, that is the direction from S.E. to N.W., the measures are more likely to vary, because, as I have already remarked, it is on these sides that the outline of the crater is more interrupted by the cloud-like appearance of the surface, and changes more quickly by differences of illumination. At the time of making these measures, and almost before completing them, I lost the distinct vision of the outline of the shallow crater in the white cloud-like appearance which came over the spot.

Small Crater.—The words I used in my Note of 1867 describe exactly the appearance of this object on December 27, 1873: “In the centre of *Linné*, but rather nearer to the western margin, was seen the small crater. This object was well defined in the telescope. The interior of the small crater was in shadow, with the exception of a small part of it towards the east.” “The small crater, which appears to be deep, has a narrow margin brighter than the White Spot on which it falls. The measures of the crater include the narrow bright margin.”

In 1867, I measured the small crater across in several directions, and then took the mean of the measures on the sup-

position that the small crater was sensibly round. The result was: Diameter of small crater, $1''.71$.

In my recent measures, I took one set in the direction of the longer axis of the large crater, and a second set at right angles to that direction. These measures seem to show that the small crater did not appear quite round at this time, but was sensibly oval in a direction at right angles to the larger crater. I give all the readings of the micrometer, that a better estimate may be formed of the value to be given to the measures.

First set, in the direction of the longer axis of the shallow crater :

$$\begin{array}{r} 21.5 \\ 21. \\ 21. \\ \hline \text{mean } 21. = 1''.73 \end{array}$$

Second set, at right angles to the former direction :

$$\begin{array}{r} 22.5 \\ 22.7 \\ 23. \\ \hline \text{mean } 22.7 = 1''.98 \end{array}$$

The mean of these, $1''.8$, agrees almost exactly with the measures of 1867.

The occasional observations I have made of this object during nine years do not appear to me to afford any evidence of a permanent change of the lunar surface at this spot. The different aspects which this object assumes under different conditions of illumination appear to me to be exactly the same as those which it presented in 1867.

The measures in 1867 were made with a refractor of 8 inches aperture and an eye-piece magnifying 500 diameters. The observations were made in 1873, with a refractor of 15 inches aperture and an eye-piece giving a power of 420 diameters.

I append a few extracts from my note-book of some of the appearances which this object presents :—

1866, December 14.—With Savart's polariscope. The bands passed unbroken across *Linné*, which appeared as a white spot.

1867, July 8, 7^h 10^m.—As a shallow oval crater, a little shadow thrown by the western margin.

Ditto, ditto, 8^h to 8^h 30^m.—Small cone as a little hill a little west of centre. Shadow cast by it pointed, and extending nearly to the eastern margin.

July 9, 8^h 30^m to 9^h 30^m.—The boundary of white spot gradually passes into surrounding surface, more irregular at some points. Measures will differ as more or less of the faint outline is included, and according to the points of the outline selected.